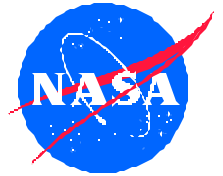


Magnetic Bearing System for Gas Turbine Engine

*Synchrony Inc.
Roanoke, Virginia*



INNOVATION

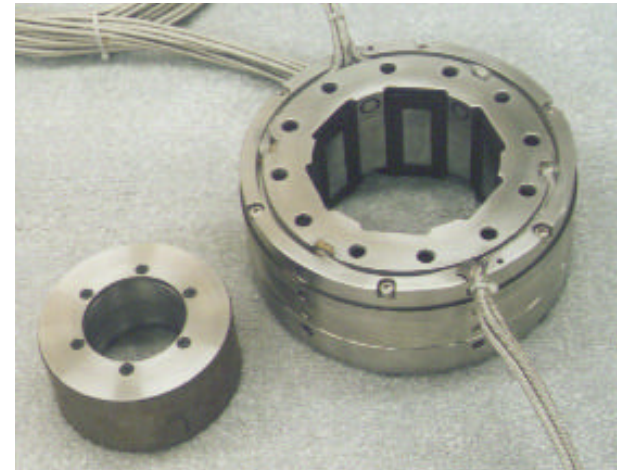
High Temperature, Fault-Tolerant Magnetic
Bearing and Monitoring System

ACCOMPLISHMENTS

- ◆ Demonstrated actuator performance to 1100° F
- ◆ Demonstrated adaptive, inertial balance control system to 12,000 rpm
- ◆ Successful demonstration of fault-tolerance operation
- ◆ Demonstrated innovative capacitance sensor to 1100° F
- ◆ Demonstrated monitoring system for rotordynamic health of machine, including estimation of size and location of unbalance.

COMMERCIALIZATION

- ◆ Commercial sales of magnetic bearings - \$612,500 to Rolls-Royce Allison, General Electric, Lion Precision
- ◆ Strategic alliance with Rolls-Royce Allison to develop gas turbine engines with magnetic bearings
- ◆ Spin-off industrial controls company with cumulative revenues exceeding \$6 million



Rotor and Stator of Magnetic Bearing

GOVERNMENT/SCIENCE APPLICATIONS

- ◆ Technology is currently used in Department of Defense programs to develop Advanced Turbine Engine Gas Generator (ATEGG)
- ◆ Applicable to future More Electric Engine programs for manned and unmanned aircraft
- ◆ Magnetic bearings suitable for industrial compressors, pumps, fans, motors, metal-forming machinery